A pedagogical framework to promote sustainable financial literacy in competence-based vocational secondary education and training: The SuFi project case

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ABSTRACT

This article analysed scientific literature and normative documents to design a pedagogical framework for promoting sustainable financial literacy in competence-based vocational secondary education and training within the Interreg Central Baltic project "Sustainability in Finance – SuFi". An empirical study was conducted in 2020–2021 that involved observing and analysing ideation, elaboration, and piloting processes for an open online module on sustainability issues in vocational business education and training within the SuFi project. The study analysed structured interview responses from nine SuFi project participants; the qualitative data analysis design for the same was based on grounded theory and a constant comparative method. The pedagogical approaches to promoting sustainable financial literacy are described and a systematic, comprehensive, evidence-based proposal is given for promoting sustainable financial literacy in competence-based vocational secondary education and training. The pedagogical framework presented in this article also suggests concrete directions for future pedagogical practice and research.

Keywords: pedagogical approach, sustainable development, sustainable finance, sustainable financial literacy, vocational secondary education and training.

Un marco pedagógico para promover la competencia financiera sostenible en la educación y formación profesional secundaria: El caso del proyecto SuFi

RESUMEN

Este artículo analiza la literatura científica y los documentos normativos para diseñar un marco pedagógico para promover la competencia financiera sostenible en la educación y formación profesional secundaria basada en competencias dentro del proyecto Interreg Central Baltic "Sustainability in Finance - SuFi". En 2020-2021 se realizó un estudio empírico que consistió en observar y analizar los procesos de concepción, elaboración y pilotaje de un módulo abierto online sobre cuestiones de sostenibilidad en la educación y formación profesional empresarial dentro del proyecto SuFi. El estudio analizó las respuestas a las entrevistas estructuradas de nueve participantes en el proyecto SuFi; el diseño de análisis de datos cualitativos se basó en la teoría fundada y en el método de comparación constante. Se describen los enfoques pedagógicos para promover la competencia financiera sostenible y se presenta una propuesta sistemática, exhaustiva y basada en evidencias para promover la competencia financiera sostenible en la educación y formación profesional secundaria basada en competencias. El marco pedagógico presentado en este artículo también sugiere direcciones concretas para la práctica pedagógica y la investigación.

Palabras clave: enfoque pedagógico, desarrollo sostenible, finanzas sostenibles, competencia financiera sostenible, educación y formación profesional secundaria

1. Introduction

To promote environmentally sustainable learning in any learning context, a European sustainability competence framework was developed based on European Union (EU) policies comprising four interrelated competence areas, namely, embodying sustainability values, embracing complexity in sustainability, envisioning sustainable futures, and acting for sustainability (Bianchi *et al.*, 2022). The Central Baltic region in the northeast of the EU is made up of two Nordic countries, Sweden and Finland, and two Baltic countries, Estonia and Latvia. This region operates as a cohesive cross-border cooperative to promote innovative business development, improve environmental and resource use, improve employment opportunities, and enhance public services (Interreg Central Baltic, 2021). Therefore, as part of this cooperation, common competence needs must be met through the development of cross-cultural, sustainable educational paths that foster sustainability and ensure inclusive opportunities for all students and graduates. Sustainable development (SD) and sustainability issues must be advanced in vocational education and training (VET), especially business and management education, from both ecological and ethical perspectives (Eizaguirre *et al.*, 2019; Hermann & Bossle, 2020; The Council of the European Union, 2020; Tormo-Carbó *et al.*, 2018).

The Interreg Central Baltic project "Sustainability in Finance – SuFi" (2020–2022) is aimed at aligning vocational business education with the United Nations' sustainable development goals (SDGs) and sustainability principles, which means that the sustainable finance (SF) competencies need to embrace heterogeneous concepts, definitions, and standards (Migliorelli, 2021; Schoenmaker, 2020). EU policy sees SF as being finance that supports economic growth, considers social and governance aspects, and reduces environmental pressures (European Commission, n.d.). SF refers to investment in and lending to sustainable government institutions and corporations and the implementation of projects that can accelerate transitions to low-carbon, circular, inclusive economies (Schoenmaker, 2020). Migliorelli (2021) claimed that SF was "finance to support sectors or activities that contribute to the achievement of, or the improvement in, at least one of the relevant sustainability dimensions"; therefore, SF could also be a synonym for "finance for sustainability" (p. 10). VET institutions and financial institutions must collaborate and change their operational practices to align education and finance operations with the SDGs. The finance sector's awareness of sustainability principles could advance young business graduates' employability, mobility, and competitiveness across the Central Baltic region. To achieve financially balanced, sustainable, ethical, and responsible lifestyles, sustainable financial literacy (or financial literacy for sustainability) can contribute to global economic growth and SD by considering environmental, social, and governance issues when making financial and investment decisions, not only for business but also for personal finance (OECD-GFLEC, 2018; Praveena & Rachel, 2018).

This study analysed scientific literature and normative documents to propose a pedagogical framework for the promotion of sustainable financial literacy in competence-based VET within the SuFi project.

2. Theoretical background

2.1. Vocational education and training in Europe

With a particular emphasis on green and digital skills, the shared priorities of the European VET system have been highlighted in European policy documents and linked to the European Commission's strategy to transform human capital skills based on labour market demand. VET for sustainable competitiveness, social fairness, and resilience has been defined as an enabler for the transition to digital and green economies (CEDEFOP, 2021; European Commission, 2019, 2020a, 2020b; The Council of the European Union, 2020). Underpinned by research, analyses, and information on VET systems, policies, practices, and the skills, needs, and demands in the EU, the European Centre for the Development of Vocational Training (CEDEFOP) assists in developing European VET policies. High-quality and innovative VET systems at upper secondary, higher, and continuing education levels provide people with the knowledge, skills and competencies for work, personal development, and citizenship; furthermore, it allows students to gain knowledge and experience regarding the required digital and green transitions needed to cope with emergencies and economic shocks, support economic growth and social cohesion and gain the in demand labour market skills. Nevertheless, because of the urgency of green and digital transitions, the attractiveness and quality of the VET offers for both young people and adults must be significantly expanded and enhanced (The Council of the European Union, 2020).

2.2. Changing the pedagogical approach

The VET sector must build trust in the usefulness and quality of its training to engage citizens in training and achieve the EU's ambitious educational goals. For example, VET evaluations by European citizens (CEDEFOP, 2017) were focused on course choices that provided VET graduates with expanded labour market opportunities.

Generally, professional competence is associated with higher productivity and performance (Morris *et al.*, 2013). To increase competencies, information must be transformed based on previous knowledge. New information must be compared with what is already known, and beliefs should be reviewed if they are inconsistent with previous beliefs (Bada, 2015). Constructivism claims that higher competence leads to higher productivity because constructivism presupposes that people actively seek knowledge to improve themselves (Morris *et al.*, 2013). Since the beginning of the 21st century, education goals have changed in the world's leading economies from educating the workforce and increasing international economic competitiveness and prosperity to global citizenship, social justice, and sustainability (Laurie *et al.*, 2016). Given that the SDGs are at the heart of sustainability education and are value and results oriented, to address the challenges underlying the SDGs, research has found a strong link between sustainability education and learning frameworks that transform education systems and inspire change (Noy *et al.*, 2017). The Council of the European Union (2020) gave recommendations and defined the directions for the future development of VET in the November 24, 2020, "Recommendation on VET for Sustainable Competitiveness, Social Fairness, and Resilience." Since flexibility and growth are at the heart of VET, training programs should be learner-centred, offer access to face-to-face and digital or blended learning, and provide flexible, modular learning pathways (The Council of the European Union, 2020).

Defining and implementing key sustainability competencies in curricula could be an important step toward integrating sustainability into education and business as graduates with sustainability competencies could positively influence sustainability in companies, organisations, and society (Eizaguirre *et al.*, 2019). However, there has been no consensus on the sustainability competencies that should be included in curricula. Several studies have agreed that systemic, critical, and strategic thinking, empa-

thy, and the ability to interact with others are key sustainability competencies (Eizaguirre *et al.*, 2019), and research in Belgium on the development of sustainability education competencies in entrepreneurship higher education programs (Lambrechts *et al.*, 2013) found that competencies focused on responsibility and emotional intelligence could be easily integrated into curricula but that competencies related to systemic approaches to the future, personal commitment, and tasks were underdeveloped. Although sustainability education competencies have been integrated into many curricula, the development has been indirect and fragmented and has only partially covered the required knowledge, skills, and attitudes (Lambrechts *et al.*, 2013). However, despite criticism, the inclusion of sustainability in entrepreneurship curricula helped students explore these issues from different perspectives and develop critical thinking about important concepts, such as industrial pollution. A clear understanding of climate change, human rights, equality, and business ethics requires a distinction between social and business morals when evaluating the rationale for business decisions (Dziubaniuk & Nyholm, 2020). Although standards and regulations can reduce the risk of unfair business practices, the most effective way to influence future professionals' ethical perceptions of entrepreneurship and social responsibility is to establish business ethics values during their education (Tormo-Carbó *et al.*, 2018). Including sustainability and ethical business topics in curricula is not new; however, it still appears to be impossible to improve teaching methods to ensure that new societal and environmental issues are adequately focused on (Dziubaniuk & Nyholm, 2020).

The European policy strategy recommendations tend to indicate that the educational theory supporting VET should be based on constructivist and constructionist principles, that is, an educational process that allows the students to become the creators of the ideas and meanings needed in real-world situations (Ah-Nam & Osman, 2017). As the constructivist approach is based on building knowledge spaces during learner–teacher and learner–learner interactions, it can be used to develop sustainability and ethics programs or courses. The constructivist environment also develops creative thinking by combining practical "learning by doing" with conceptual understanding (Dziubaniuk & Nyholm, 2020). One of constructivism's initiators, John Dewey (1916), believed that the youngest members of certain groups in society should become involved with more experienced and mature group members and share in their activities as these older people's knowledge and skills could disappear. Constructivism implies that an individual only gains a subjective understanding of reality from their own experience, that is, each person has a unique reality. Consequently, one of the key reasons for integrating a constructivist approach into education would be to ensure that learners gain the ability to take the initiative to learn from their own experiences (Sharma & Bansal, 2017). Taking a constructivist approach to the assessment of learning outcomes is essential to achieving educational goals as assessment and evaluation can identify a learner's learning needs and desires and ensure that their attitudes reflect a desire to learn (Ahmad *et al.* 2020). This paradigm shift from learner assessment to assessment for learning focuses on strengthening the link between what learners want to learn and what is expected and highlights the gaps in the learners' knowledge and perceptions (Ahmad *et al.*, 2020).

Constructivist learning methods are focused on learning as an active process (Bada, 2015). Therefore, in a constructivist class, the teacher first seeks to determine the learner's understanding of the main idea of the subject and then structures opportunities for the learner to review their understanding, provide contradictions, provide new information, research or test the information, and challenge established beliefs (Brooks & Brooks, 1993), that

is, the teacher is a facilitator whose primary function is to help learners become active participants in their learning and create meaningful links between their prior knowledge and the new knowledge (Fink, 2013) in a collaborative and solution-oriented learning environment. However, it could be argued that teachers follow required processes (Bada, 2015).

Laurillard (2009) summarised constructivist approaches to active learning and developed a learner-centred "Conversational Framework" to foster interactions between learners, concepts, and practices. The framework comprised six learning frames that described a learner's interactions with the teacher and their peers during the learning and their practical and creative involvement in all learning types. Laurillard (2012) then updated the framework by adding a list of typical activities to each learning activity and distinguishing the actual and online activities.

2.3. Transformative pedagogy

The World Commission on Environment and Development presented SD as a model of holistic social change – "[…] that meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987, p. 46). Fundamentally SD is about the transformation of basic aspects of the present ideal of material well-being to protect the natural systems that maintain human and non-human life (Baker, 2006). In its deepest sense, this means that the main goal of learning is seeing things differently instead of doing things better or even doing better things (Bateson, 1972; Sterling, 2003, 2011).

Transformative pedagogies for SD ask how human beings as decision makers and citizens could change the direction of development that seems to be inevitable. How does learning transform humans and human-environment relationships? How could students integrate personal transformation pathways in attempts to shape material and social changes? Which social factors could drive humanity to move away from unsustainability? How can societal transformations be accelerated towards SDGs? (Salonen & Siirilä, 2019).

2.4. Competence-based vocational education and training

Wessenlink and Giaffredo (2015) claimed that competence-based education was an appropriate constructivist pedagogical approach to vocational education but also acknowledged that there was no standard definition for competence-based education that could be used in all educational situations. A comprehensive competence-based VET model was developed in 2011 that could be adapted to achieve competence-based vocational education (Sturing *et al.*, 2011), which had four implementation levels and the following eight principles:
- the competencies that form the study program's basis are defined;
- the fundamental VET problems are the organisational units in the curriculum transformation;
- the development of the student competencies is assessed before, during, and after the learning;
- the learning activities take place in different authentic situations;
- the knowledge, skills, and attitudes are integrated into one learning and assessment process;
- student responsibility and self-esteem are stimulated;
- the teachers have a harmonious role as a coach and an expert both at school and in practice;
- attitudes toward lifelong learning are developed (Sturing *et al.*, 2011).

However, this competence-based VET model only describes the framework for an educational approach and does not define the specific pedagogical methods and/or tools required to conduct practical educational activities (Wesselink & Giaffredo, 2015). If the principles are observed, the four model implementation levels provide a practical educational approach. The first level is a noncompetence-based approach focused on knowledge transfer. The second level introduces the competence-based approach, which can also be described as a knowledge transfer approach that uses examples from practice. The third level involves a semi competence-based process, where the knowledge transfer is combined with practice. At the fourth level, all education is implemented based on competencies and fundamental professional problems (Sturing *et al.*, 2011), which requires the students to be actively involved in the course material through issue solving, case studies, discussions, role plays, and other forms of active learning that shift the learning responsibility from the teacher to the learner (Cattaneo, 2017).

Active learning involves learners engaging with their cognitive processes and encompasses individual, pair, and group learning methods (Mizokami, 2018). Competence is a practical expression of the theory and forms a bridge between theory and practice (Bach & Suliková, 2019); hence, learning to use knowledge and skills is a competence (Parrado-Martínez & Sánchez-Andújar, 2020). In comparison, passive training programs teach specific knowledge or skills but do not pay attention to whether the learning is useful or whether the learner can immediately use this knowledge in their workplace, that is, competencies are not achieved in passive training programs (Parrado-Martínez & Sánchez-Andújar, 2020). The focus of competence-based learning is practical action, and most importantly, the ability to use the gained knowledge immediately and transfer the knowledge into action. Nevertheless, there is always a possibility that what has been learned will not be used in practice as the fact that a person has professional or self-competence does not mean their conduct is competent because competent action is meaningful action (Bach & Suliková, 2019). To minimise teacher dominance, students should be encouraged to describe as many situations as possible in which the learning could be applied in practice (Bach & Suliková, 2019).

The constructivist approach could be used to develop secondary vocational education as it involves active learning in real-world situations that can engage the students in the educational process and give them ownership over their ideas and the meanings assigned to them. The constructivist approach also engenders creative thinking by combining practical "learning by doing" with conceptual understanding. The active learning process ensures the acquisition of personal experience and stimulates competence development as a practical expression of theoretical knowledge. Given that passive learning does not pay attention to whether the learning is useful in the students' daily life or workplace, it is not suitable for VET.

2.5. Sustainable finance in vocational education and training

SF should be part of SD education, which is often place-specific, problem-focused, and based on awareness raising and identification with personal living environments. SD education encourages critical thinking, social critique, local context analysis, and the discussion and application of values (Laurie *et al.*, 2016). SD curricula themes focus on interactions between the environment, economy, and society and seek solutions to challenges, such as poverty, hunger, and responsible consumption and production (Laurie *et al.*, 2016). UNESCO (2016) defined a set of sustainability development themes, such as climate change, disaster risk reduction, biodiversity, poverty reduction, and sustainable consumption, that could be integrated into existing curricula and advised on teaching methods that could motivate learners to act sustainably (UNESCO, 2016). SD education should be focused on developing skills to ask critical questions, formulating values, thinking systematically, imagining positive future scenarios, and collaborative decision making (Tilbury, 2011).

SF ensures that environmental, economic, and social relationships are considered when making financial decisions; therefore, financial sector decision-making needs to include sustainability-related knowledge, skills, and competencies (Luxembourg Sustainable Finance Initiative, 2021). The development of curricula that stimulates sustainable financial skills and competencies requires cooperation at all education levels, should clearly and unambiguously stress the links between finance and the real economy, and should integrate LNG principles into banking, insurance, and investment business models (Deloitte, 2019) to encourage students to take the initiative and become personally involved (Lambrechts *et al.*, 2013).

Since education is essential to develop knowledge and competencies, SD, SF, and sustainability issues must be included in education curricula and developed as specialised subjects or courses. Because economic and social sustainability has become a key focus in many economies, the labour market demand for sustainable financial literacy has been growing; therefore, as a foundation for the development of SD competencies in further education, vocational secondary students must be introduced to sustainability topics.

3. Methodology

The empirical study has been conducted by observing and analysing the processes of ideation, elaborating, and piloting of an open online module on sustainability issues for vocational business education and training (VET) within the SuFi project by involving students, teachers, and other relevant stakeholders to find out the answer to the research question: What systemic and pedagogical approaches contribute to the SD of financial literacy among VET students? The research question determined the overall research design, the research strategies, and the contextual focus of the research. Derived from the specific research question and using the results of the data analysed, the learning outcomes, core content, and assessment criteria for SD course piloted during the SuFi project will be presented in the section "Results".

3.1. Research design

The research design, classified according to the research strategy, is a qualitative study, as the study provides qualitative data that cannot be classified as variables whose relationships are described by statistical characteristics (Mārtinsone *et al.*, 2016). In turn, classifying according to the research question, the research has a grounded theory design, which is a qualitative research design, where the researcher, using the analysis of constant comparison of data, develops a general explanation of the process, action or interaction based on the research participants' views. The role of researchers in the design process of grounded theory research is to seek answers to the research question, involving researchers' philosophical beliefs and interpretations of the world, improving and expanding the existing body of knowledge in the data collection process, with new conclusions or grounded theories (Chun Tie *et al.*, 2019).

3.2. Research sample and data collection procedure

The research sample was determined by the composition of the SuFi project participants, as one of the tasks of the research is to summarise the experience gained by the SuFi project participants during the project, which could be useful in answering the research question. Therefore, all SuFi project participants were addressed during the research to obtain data – 29 respondents who participated in the development and piloting of the online study module from November 3 to November 10 2021, were requested to answer written questions in the digital environment using a link to the structured online interview form.

Nine SuFi project participants responded to the interview request. To characterise the respondents, three characteristic criteria were chosen during the interview: what is their role in the project, the experience of teaching sustainability topics and the organisation that the respondent represents in the project. The profile of the interviewees was as follows: five were developers of the study module, one piloted the module and three respondents who developed and piloted the module as well. Of all respondents, two have more than six years of experience in teaching sustainability issues, and seven respondents have less than two years of teaching sustainability issues. The majority (five answers) was received from the representatives of Liepāja State Technical School. The other responses received were one each from Åland University of Applied Sciences, the University of Tartu, Haaga-Helia University of Applied Sciences and the University of Latvia.

Structured online interviews, which are interviews with general open-ended questions, were used to collect research data, which allows the respondent to provide a broader insight into specific issues. Structured interviews were conducted in in Latvian and English. The nine questions of the structured interview were grouped into three question categories (Table 1).

3.3. Data processing and analysis procedure

The first step was to transfer the received interview data from Google form to MS Excel, saving the data as a csv file opened in the MS Excel environment to ensure proper text distribution by columns. The resulting information field was formatted as a single table for convenient data grouping and filtering. The next step was to create a coding location by adding new columns to the table to write open, axial, and selective codes and labels for each code type. In a qualtitative research, after the collection of research data, the data obtained was interpreted to analyse it theoretically and conceptually, obtaining a data model that provides an illustrative explanation of the question raised at the beginning of the research (Mārtinsone *et al.*, 2016). In accordance with the basic principles of grounded theory (Chun Tie *et al.*, 2019; Conlon *et al.*, 2020), labels were made for each interview as the data was analysed using constant comparison of data, searching for consistencies and differences between conditions and consequences, and identifying the data models (concepts and categories). The study accounted for intercoder reliability through the application of multiple coders to ensure the consistency and validity of the collected data (Linneberg & Korsgaard, 2019).

The first stage of data analysis was open coding, where categories and subcategories describing the phenomena under study were created, revealing the peculiarities of the categories and the range of manifestations. After multiple revisions, 58 open source codes were retained.

The second stage of data analysis was axial coding, where the data obtained during open coding is transcoded to reflect the central phenomenon, the conditions affecting it, the operation of the phenomenon and its consequences. Axial codes were created by grouping the open codes into categories. In creating such categories, all the respondents' statements were related to the criteria describing VET, and after several revisions, 12 axial codes were retained.

Table 1.
Structured online interview questions.

Question category	Interview question
The situation before the introduction of the study module developed within the SuFi project	1. What activities do you know of have been implemented in both higher education and VET so far to teach or promote the SD of financial literacy? (The answer could include analysis of whether there are special study courses, whether the topics of sustainable financial development are included in the study content of various study courses, or anything else that you think has been done or not). 2. What challenges do you currently see in the rapid development of sustainable financial literacy?
The SuFi study module development process	3. What are the main pedagogical approaches and methods for the study module developed within the SuFi project? 4. What are the most exciting or challenging planned learning pathways in terms of educational methodologies that promote students' sustainable financial literacy and overall sustainability competencies and that motivate students to develop sustainable financial literacy and sustainability competencies? 5. What are the possible differences in the development of the study module in terms of the countries involved in the project? For example, the proportional distribution of topics, which topics should be included, which are not, how the learning outcomes of the study module should be assessed? 6. What are the variations of the implementation of the SuFi study module - it can also be used for face-to-face studies or only online?
The implementation of the SuFi study module	7. What is the students' knowledge of sustainability issues before starting the SuFi study module? (Describe students' knowledge of SD and SF). 8. What challenges have you already faced during the implementation of the module? 9. What are the general or specific situational observations on student learning during the implementation of the module?

The third stage of data analysis was selective coding, where a plot was created from the groupings of the separated categories, which may contain the hypotheses put forward for the purpose of grouping the categories (Mārtinsone *et al.,* 2016). During the selective coding, the narrative of promoting sustainable financial literacy was created by arranging the axial codes in a sequence that describes the opportunities for students to develop sustainable financial literacy in VET programs. Selective codes give axial codes a significance level on a scale of 1 to 3, where 1 means the highest level of significance, which characterises the conditions without which it is not possible to develop sustainable financial literacy in VET programs and 3 characterises the lowest level of significance of conditions that provide an orderly, supportive and inclusive learning environment, but are not critically important for providing learning opportunities.

4. Results

The selective coding labels illustrate the theoretical saturation process, concentrating on the most important ones to express the research results (Table 2).

Based on the theoretical and empirical research results, an online SD course (5 etcs) was elaborated and piloted as a part of the SuFi project in four educational institutions in order to provide the students an opportunity to learn the basics of sustainable investments (Table 3). Course covered main topics of environmental, social, and corporate governance (ESG) criteria. Sustainable investing as an investment discipline considers ESG criteria to generate long-term competitive financial returns and positive societal impact. Goal of the ESG criteria is also to decrease the risk level of the investment portfolios.

Table 2.
Selective codes with axial codes and selective code notes (by significance levels).

Significance level	Axia code	Selective code notes
1	Demand / supply	Topics of sustainable development aspects, incl. the development of sustainable financial literacy needs, to be widely developed in VET.
	Educational progam content	SD should be included in the curriculum both as specialised subjects and in all subjects, focusing on the SD perspective.
2	Lack of definition and common understanding	There is no common understanding of the definitions of SD and SF. The lack of definitions makes it difficult to understand exactly what needs to be taught and how to achieve results in order to develop an overall understanding. The teaching of SD topics must be based on a common terminology and methodology, mandatory for all teachers.
	Teaching staff	Existing teachers need to supplement their knowledge of SD teaching so that all learning content can be taught from a sustainability perspective. Teachers need to be taught about the learning content and about learning methods in different environments as well. New teachers need to be trained for systemic teaching of SD.
3	Learning materials	Learning materials should be fact-based, understandable, visual, and adaptable to different learning environments, including tools that are better suited to each environment. The learning materials should contain step-by-step instructions for conducting the lesson. Learning materials for teaching SD topics should be developed for teachers.
	Future environment	A common online environment must be created so that there are no technical barriers to learning. A teaching community forum needs to be created to inspire, learn and seek support. Developing the sustainability competencies of VET students is one of the most effective ways how to achieve the education of a broad range of generations on sustainability issues and foster a stable culture of sustainability and behavior among emerging adults.
	Learning space / mode	The benefits of blended learning are the flexible, free choice of time and place of learning that is appropriate for VET, offering more effective learning. Online learning situations that are close to the authentic environment allow students to experience the most important choices and decisions in digital literacy that cannot be learned through theoretical approaches. Appropriate teaching methods and approaches need to be chosen for the online environment.
	Present environment	The national SES related to the SD competence level shows a lack of understanding of the SD. Educators lack a systemic understanding of SD. Few educators are competent to teach SD and only those who are, teach. Teachers do not have knowledge and experience in teaching SD topics. SD teachers in VET are needed. The student-centered approach is poorly developed.
	Competence-based approach	The competencies that are the basis of the study program are defined, i.e. which competencies need to be developed are defined. Study courses are based on the principle of developing professional competencies. When teaching SD topics, sustainability competencies, especially a systemic vision, taking initiative and responsibility, and personal involvement in the process need to be developed. Knowledge, skills and attitudes are integrated into learning and assessment processes. The acquisition of SD topics requires the development of key competences: literacy, multilingual competence and digital competence. The basis for students' attitudes towards lifelong learning needs to be established. Learning activities take place in a variety of authentic situations.
	Teaching approaches in VET	The teacher has the role of a coach and an expert both at school and in practice. The basic principle of VET learning is "learning by watching". Active learning strategies, types, tasks are suitable for VET format.

Significance level	Axia code	Selective code notes
	Learning outcomes	The development of students' competence is assessed before, during and after learning. Formative assessment is part of the learning process. Self-evaluation is an important part of evaluation, which is the basis for motivation. Learning outcomes are assessed by behavior and attitudes demonstrated when performing tasks in a learning environment or in real life. Learning outcomes must be oriented towards the values that motivate them to achieve the results.
3		Students need to develop collaboration and participation skills, commitment to safety, emotional intelligence (intercultural understanding, empathy, compassion), motivation for personal involvement (self-motivation, motivating others, learning), vision, critical and strategic thinking, ability to act socially, equal awareness of opportunities, gender issues and citizenship. Students need to develop a systemic understanding of SD, to develop a systemic vision of climate change that motivates to preserve the environment through sustainable funding. An understanding of SF as one of the components of economic sustainability needs to be developed. In order to increase their competence, students need to discover and transform information based on the previous knowledge gained. Reproduction of knowledge must be avoided, understanding linked to real life and experience must be promoted.
	Study content	

Table 3.

Learning outcomes and study content of SD course.

Learning outcomes	Study content
- Describe and interpret current trends in the area of sustainable finance - Identify different sustainable asset classes and instruments - Compare different types of sustainable finance products - Critically evaluate sustainability risks and opportunities - Demonstrate critical thinking in the field of sustainable investments practices - Identify and discuss conditions for countries to benefit from growing sustainable investment opportunities - Explain the process of creating functional sustainable ass*et al.*ocation - Apply sustainable finance models and strategies to a real-life case study	1. Introduction to investments 2. Introduction to sustainable investments, ESG 3. Introduction to case assignment 4. Sustainable investment strategies 4. Examples of green investments in practice 5. Workshop of project assignments 6. Presenting assignments, conclusions, assessment and feedback of the course

As an introduction of the SD course the main investment principles were covered. Risk and return aspects were interpreted and sustainable investments aspects were covered in order to improve fund or portfolio investment returns and risk profiles. Different approaches to sustainable investments were also presented by external specialists (e.g., fund managers and practitioners). After the SD course students were able to identify and reflect elements of ESG in different asset classes and compare different tools and strategies in supporting sustainable investments.

Sustainability in mutual funds-project assignment was implemented to SD course. The aim was to select three mutual funds and analyse the strategies of these particular funds. These funds should have at least a different geographical location or theme. It was strongly recommended that funds represent different asset classes (stocks, bonds, real asset funds, etc.). Students analysed the most remarkable investments of funds chosen, the performance of these funds compared to benchmark index and the expenses of these funds; sustainability of these funds from the perspective of their learning outcomes during the studies including the main principles of ESG, SDGs, impact investing, and sustainability strategies.

The primary or most important factor in balancing demand with supply is to increase sustainable financial competencies through both formal and non-formal education. In order to acquire and increase sustainable financial competence during formal VET, it must be included in the curriculum, enabling students to develop sustainable financial literacy, but in order to fully implement the curriculum during the study process, teachers need to have knowledge of the curriculum topics. Based on the theoretical and empirical research results, a conceptual proposal for the promotion of sustainable financial literacy in VET has been developed, which is shown schematically in the figure below (Figure 1).
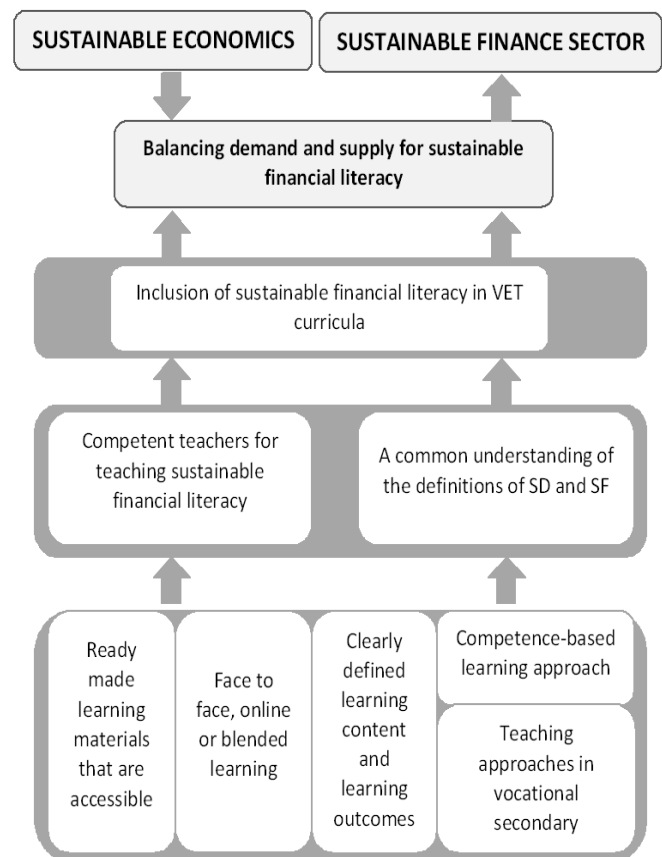

Figure 1. *A conceptual proposal developed based on research for the promotion of sustainable financial literacy in VET (own elaboration)*

5. Conclusion

Financial literacy is not only significant for students but also for the nation in general. In this regard, developing sustainable financial literacy is only possible through political will and the implementation of effective financial education policies. Consequently, the inclusion of technology and digitalisation of finance is significant in developing financial literacy since it harbours interventions that are able to provide access while addressing the consequences of demographic changes occasioned by financial illiteracy.

In order to transform the economy to ensure sustainable development, the financial sector has a key role to play in channeling public and private funding for sustainable development projects. Assessing the sustainability aspects of projects is a legal obligation for the financial sector, which is rapidly creating a sustainable demand for financial literacy among employees at all levels and spheres of the financial sector and other sectors of the economy. The developed theoretical proposal groups together the key conditions for promoting sustainable financial literacy according to the levels of their significance, describing the significance level of the conditions for providing VET students the opportunity to develop sustainable financial literacy. The most important criterion for promoting sustainable financial literacy in VET is the inclusion of SD content, including SF education, in VET programs, which would enable students to develop sustainable financial literacy during formal VET. The next criterion for promoting sustainable financial literacy is teaching staff competent in the field of SF and their availability in VET. An equally important criterion for promoting sustainable financial literacy is the development of a conceptually common understanding of the nature of SD and SF by working out such definitions. The existence of definitions, a common understanding and competent and available teaching staff enable students to develop sustainable financial competencies faster and more extensively, however, their absence does not preclude the acquisition of sustainable financial literacy during VET. So these criteria have a secondary level of significance. The third level of importance is given to elements characterizing the learning environment, which enhance the possibility to develop SD competencies faster and more consistently. Such elements include the definition of learning content and learning outcomes, the development of learning materials and their accessibility to teachers, the choice of appropriate teaching approaches, and the choice of a more appropriate learning environment (face-to-face, online or blended).

Analysing the research data, it was concluded that:
– the most important criterion for promoting sustainable financial literacy in VET is the inclusion of SD content, including SF, in VET programs, which would provide students the opportunity to develop sustainable financial literacy during formal VET;
– teachers competent in SF topics, appropriate teaching approaches and the wide availability of competent teachers in VET is an important criterion for the rapid and extensive development of SF competences of VET students. Equally important is the development of a conceptually common understanding of the nature of SD and SF through the development of comprehensive descriptive definitions. The presence of both criteria qualitatively expands the acquisition of sustainable financial literacy provided the most important criterion – the inclusion of sustainable financial literacy in VET curricula is realised;
– the description of learning content and learning outcomes, developed learning materials and their accessibility to the teaching staff, the choice of appropriate teaching approaches and the choice of the most appropriate learning environment are the criteria that characterise the VET learning environment. Their presence both enhances the ability of students to develop SD competencies faster and more consistently, and allows for the extensive development of sustainable financial literacy as well, significantly reducing the risks regarding the quality of learning, provided that the above mentioned criteria are met.

The answer to the research question - What systemic and pedagogical approaches contribute to the sustainable development of financial literacy among VET students - was obtained by analysing the scientific literature and empirical research data, concluding that the sustainable financial literacy of VET students is promoted by:
– organisation of the learning process, choosing active learning methods and their types, providing students the opportunity to gain personal experience through the study content during the study process. The competence-based education approach promotes the development of students' competencies;
– linking the study content with the students' private and professional life, creating an understanding of the practical application of the knowledge gained;
– the use of learning materials that are fact-based, understandable and visual, include step-by-step instructions for teaching, are adaptable to different learning environments and include learning tools and methods that are appropriate and recommended for each learning environment:
– the implementation of the learning process at different levels – face-to-face, online, offline or blended learning - offering a learning environment appropriate to the learning content and learning outcomes, providing students with the opportunity to choose the time and place of learning. To obtain more extensive and accurate information on pedagogical approaches to sustainable financial literacy in VET, interviews with a broader scope of sustainable financial literacy experts should be conducted, which can be combined with other data collection methods, to gather sufficiently extensive data in order to develop a comprehensive descriptive concept for pedagogical approaches that promote sustainable financial literacy.

Procedural innovations and students' needs and outcomes are central to improving financial education. In this context, retraining the teaching staff is essential to orient the learning content to sustainable financial literacy. Consequently, creating an equal online environment is also critical to enhancing competency and digital financial literacy, which cannot be learned theoretically. On the other hand, equipping students with competent financial education study programs that are critical in imparting systemic vision, personal responsibility, and initiative is essential in establishing learning outcomes that enhance financial literacy. In addition, formative assessment should be aligned with outcomes that allow the students to have adaptive behaviours and attitudes to operate in real life.

The online SD course elaborated and piloted during the SuFi project provided new tools and ways to cooperate with different educational institutions and students with heterogeneous backgrounds. Such an online SD course could serve as a practical example of teaching/learning initiatives for more comprehensive implementation of the SDGs focusing on VET key competences in the field of SD.

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